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| APPLICATION NO.                   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/549,417                        | 05/16/2006  | David Ewart Anderson | 47256-215557 US1    | 5372             |
| 23973                             | 7590        | 01/29/2008           | EXAMINER            |                  |
| DRINKER BIDDLE & REATH            |             |                      | CUEVAS, PEDRO J     |                  |
| ATTN: INTELLECTUAL PROPERTY GROUP |             |                      |                     |                  |
| ONE LOGAN SQUARE                  |             |                      | ART UNIT            | PAPER NUMBER     |
| 18TH AND CHERRY STREETS           |             |                      |                     | 2834             |
| PHILADELPHIA, PA 19103-6996       |             |                      |                     |                  |
|                                   |             | MAIL DATE            | DELIVERY MODE       |                  |
|                                   |             | 01/29/2008           | PAPER               |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

|                              |                                      |  |
|------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/549,417 | <b>Applicant(s)</b><br>ANDERSON ET AL. |
|                              | <b>Examiner</b><br>PEDRO J. CUEVAS   | <b>Art Unit</b><br>2834                |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 19 December 2007.  
 2a) This action is FINAL.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-23 and 49-57 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-20 and 49-57 is/are rejected.  
 7) Claim(s) 21-23 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 14 September 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date 9/14/05, 2/27/06, 6/26/06.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of Invention I – Claims 1-23 and 49-57 in the reply filed on December 19, 2007 is acknowledged.
2. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 55 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "altered" in claim 55 is a relative term which renders the claim indefinite. The term "altered" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

It should be emphasized that "apparatus claims must be structurally distinguishable from the prior art." MPEP 2114. *In re Danly*, 263 F. 2d 844, 847, 120 USPQ 528, 531 (CCPA 1959) it was held that apparatus claims must be distinguished from prior art in terms of structure rather

than function. In *Hewlett-Packard Co. v Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990), the court held that: "Apparatus claims cover what a device is, not what it does" (emphases in original). To emphasize the point further, the court added: "An invention need not operate differently than the prior art to be patentable, but need only be different" (emphases in original).

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3, 5, 8-17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,910,688 to Li.

Li clearly teaches the construction of a windmill, comprising a rotor (1) having a plurality of radial blades (11) and a ring-shaped aerofoil diffuser (10) connecting the outer tips of the blades.

7. With regards to claim 3, Li disclose the outer tips of the blades being connected to the diffuser at or near to the leading edge of the diffuser.

8. With regards to claim 5, Li disclose at least a portion of the aerofoil diffuser extending upstream from the outer tips of the blades (Figure 2B).

9. With regards to claim 8, it has been held that the recitation that an element is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138.

10. With regards to claim 9, Li disclose blades being inclined at an angle relative to a transverse rotor plane perpendicular to the rotational axis of the rotor (Figure 2B).
11. With regards to claim 10, Li disclose the blade's angle of inclination varies along the length of the blade.
12. With regards to claim 11, Li disclose the angle of inclination of each blade being greater at an intermediate portion of the blade than at the outer tip of the blade (Figure 2B).
13. With regards to claim 12, Li disclose the blades being substantially parallel to the transverse rotor plane at the outer tip of the blades (Figure 2B).
14. With regards to claim 13, Li disclose a nacelle (16) and a mounting means (22). It has been held that the recitation that an element is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138.
15. With regards to claims 14 and 15, Li disclose a non-linear furling means (3). It has been held that the recitation that an element is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138.
16. With regards to claims 16 and 17, Li disclose a tail fin (19) extending downstream of the diffuser. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide at least two tail fins extending downstream of the diffuser and diametrically opposite each other, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

***Claim Rejections - 35 USC § 103***

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 2, 4 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,910,688 to Li in view of U.S. Patent No. 5,599,172 to McCabe.

Li disclose the construction of a windmill as disclosed above.

However, it fails to disclose the aerofoil diffuser extending downstream from the outer tips of the blades.

McCabe disclose the construction of a wind energy conversion system, comprising an aerofoil diffuser (24) extending downstream from the outer tips of the blades for the purpose of providing more torque at lower operating speeds.

It would have been obvious to one skilled in the art at the time the invention was made to use the aerofoil diffuser disclosed by McCabe on the a windmill disclosed by Li for the purpose of providing more torque at lower operating speeds.

19. With regards to claim 4, McCabe disclose an aerofoil diffuser that tapers outwards from the outer tips of the blades to form a substantially frusto-conical diffuser (Figure 2), the rotational axis of the frusto-conical diffuser is substantially aligned to the rotational axis of the blades.

20. With regards to claim 6, McCabe disclose an aerofoil diffuser that tapers radially outwards as it extends from the upstream end to the downstream end (Figure 2).

21. With regards to claim 7, McCabe disclose an aerofoil diffuser that is shaped such that it inhibits the partly axial and partly radial airflow from the blades, said airflow becoming circumferential when it contacts the aerofoil diffuser. It should be emphasized that “apparatus claims must be structurally distinguishable from the prior art.” MPEP 2114. In re Danly, 263 F. 2d 844, 847, 120 USPQ 528, 531 (CCPA 1959) it was held that apparatus claims must be distinguished from prior art in terms of structure rather than function. In Hewlett-Packard Co. v Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990), the court held that: “Apparatus claims cover what a device is, not what it does” (emphases in original). To emphasize the point further, the court added: “An invention need not operate differently than the prior art to be patentable, but need only be different” (emphases in original).

22. Claims 18- are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,910,688 to Li in view of U.S. Patent No. 5,591,004 to Aylor.

Li disclose the construction of a windmill as disclosed above.

However, it fails to disclose one of the tail fins is a moveable tail fin hingedly mounted for rotation about a tangential hinge line.

Aylor disclose the construction of a turbine support and energy transformation, comprising hinged gates (18) having hinges (28) for the purpose opening the gates and release overflow air when excessive winds are experienced.

It would have been obvious to one skilled in the art at the time the invention was made to use the hinges disclosed by Aylor on the windmill tail fin disclosed by Li for the purpose of allowing the tail fin to be adjusted.

Art Unit: 2834

23. With regards to claims 19 and 20, Li disclose a tail fin mounted on a mounting boom (18).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to adding a hinge or adjustable mechanical connection between the boom and the nacelle, since it has been held that the provision of adjustability, where needed, involves only routine skill in the art. *In re Stevens*, 101 USPQ 284 (CCPA 1954).

Claims 49-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,910,688 to Li in view of U.S. Patent No. 5,669,758 to Williamson.

Li disclose the construction of a windmill as disclosed above.

However, it fails to disclose means for reducing the operating vibrations caused by harmonic resonance within the turbine, tower and mounting structure.

Williamson disclose the construction of a wind turbine, comprising means (tower section 86 and turning weights 102) for the purpose of providing a dampening force to counteract bowing and vibrations caused by harmonic oscillations.

It would have been obvious to one skilled in the art at the time the invention was made to use the tower section and turning weights disclosed by Williamson on the windmill disclosed by Li for the purpose of providing a dampening force to counteract bowing and vibrations caused by harmonic oscillations.

24. With regards to claim 50, Williamson disclose a nacelle damping system (Figure 4). It has been held that the recitation that an element is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138.

25. With regards to claim 51, Williamson disclose mounting brackets (103) for mounting the turbine on a surface.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use visco-elastic and structural materials in the construction of the brackets, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

26. With regards to claim 52, Williamson disclose the mounting means being tubular.

27. Claims 53-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,910,688 to Li in view of U.S. Patent No. 5,669,758 to Williamson as applied to claims 49-52 above, and further in view of U.S. Patent No. 4,377,812 to Göbel et al.

Li in view of Williamson disclose the construction of a windmill as disclosed above.

However, it fails to disclose the tower containing one or more cores of flexible material, such as rubber, with sections with a reduced diameter, which are not in contact with the tower's inner radial surface, such that the reduced diameter sections alternate with normal sized sections, which are in contact with the tower's inner surface thus serving to absorb vibrations in the tower through the energy dissipated in the flexible core before they reach the mounting brackets.

Göbel et al. disclose the construction of a segmented protective shell for tower mounted antennas with vibration damping, comprising a tower (figure 1) which contains one or more cores of flexible material, such as rubber, with sections with a reduced diameter, which are not in contact with the tower's inner radial surface, such that the reduced diameter sections alternate with normal sized sections, which are in contact with the tower's inner surface thus serving to

absorb vibrations in the tower through the energy dissipated in the flexible core before they reach the mounting brackets for the purpose of providing vibration damping to tower mounted antennas.

It would have been obvious to one skilled in the art at the time the invention was made to use the tower sections disclosed by Göbel et al. on the windmill disclosed by Li in view of Williamson for the purpose of providing vibration damping to tower mounted antennas.

28. With regards to claim 54, it has been held that the recitation that an element is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138.

29. With regards to claim 55, Göbel et al. disclose the cross-sectional shape and length of each of the reduced diameter sections is altered thus "tuning" the system to remove a range of vibration frequencies from the mounting structure.

30. With regards to claim 56, it should be emphasized that "apparatus claims must be structurally distinguishable from the prior art." MPEP 2114. *In re Danly*, 263 F. 2d 844, 847, 120 USPQ 528, 531 (CCPA 1959) it was held that apparatus claims must be distinguished from prior art in terms of structure rather than function. In *Hewlett-Packard Co. v Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990), the court held that: "Apparatus claims cover what a device is, not what it does" (emphases in original). To emphasize the point further, the court added: "An invention need not operate differently than the prior art to be patentable, but need only be different" (emphases in original).

31. With regards to claim 57, it should be emphasized that "apparatus claims must be structurally distinguishable from the prior art." MPEP 2114. *In re Danly*, 263 F. 2d 844, 847, 120

USPQ 528, 531 (CCPA 1959) it was held that apparatus claims must be distinguished from prior art in terms of structure rather than function. In *Hewlett-Packard Co. v Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990), the court held that: "Apparatus claims cover what a device is, not what it does" (emphases in original). To emphasize the point further, the court added: "An invention need not operate differently than the prior art to be patentable, but need only be different" (emphases in original).

***Allowable Subject Matter***

32. Claims 21-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

33. The following is a statement of reasons for the indication of allowable subject matter.

The prior art of record, taken alone or in combination, does not teach the construction of a wind turbine as described on and including all the disclosed limitations of dependent claim 21, wherein the moveable tail fin is rotationally biased by biasing means to an at-rest position in which the leading edge of the moveable tail fin is closer to the axis of rotation of the rotor than the trailing edge of the moveable tail fin, such that the moveable tail fin is angled at an at-rest attack angle to the axis of rotation of the rotor.

***Conclusion***

34. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Art Unit: 2834

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PEDRO J. CUEVAS whose telephone number is (571)272-2021. The examiner can normally be reached on M-F from 8:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E. Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Pedro J. Cuevas/  
Examiner, Art Unit 2834  
January 29, 2008